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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,524	02/28/2002	Ikuya Yagisawa	16869S-041400US	4089

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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

VITAL, PIERRE M

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 12/18/2003 6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,524

Applicant(s)

YAGISAWA ET AL.

Examiner

Pierre M. Vital

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6 and 9-14 is/are allowed.
- 6) ☒ Claim(s) 1,2,7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/28/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed February 28, 2002 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Humlicek (US6,332,177).

As per claim 1, Humlicek discloses a method for copying data in a memory device system having a plurality of memory devices as partitioned into a group of n

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memory devices and a group of m memory devices [*original data and copy of the original data on N drives is duplicated across M drives*; col. 5, lines 1-2], said method including the steps of: reading from said n memory devices data with a length required for preparation of redundant data [*a block to be written corresponds to N total blocks*; col. 8, lines 50-55]; forming redundant data from the read data [*N is the number of mirror images of data to be written*; col. 9, lines 38-40]; and storing said read data and said redundant data in said m memory devices [*N images of a block of data are duplicated across M drives*; col. 5, lines 1-3].

As per claim 2, Humlicek discloses at said step of storing, only part of said read data is stored in said m memory devices [*blocks (portions) of the original data are striped over the three disk drives*; col. 4, lines 49-51].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Humlicek (US6,332,177) and Schatzberg (US6,615,284).

As per claim 7, Humlicek discloses a memory device system including: a plurality of memory devices as partitioned into n memory devices and m memory devices [*original*

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data and copy of the original data on N drives is duplicated across M drives; col. 5, lines 1-2]; a controller for control of said plurality of memory devices [controller 102; Fig. 1]; and data duplex means for duplexing and storing data in said n memory devices and said m memory devices [N images of a block of data are duplicated across M drives; col. 5, lines 1-3].

However, Humlicek does not specifically teach n control means for controlling said n memory devices; m control means for controlling said m memory devices as recited in the claims.

Schatzberg discloses two individual controllers coupled to an equal number of associated disks (col. 7, lines 26-31), in order to deliver data at twice the speed that would be achieved if data were only delivered from or to a single device controller.

It would have been obvious to one of ordinary skill in the art, having the teachings of Humlicek and Schatzberg before him at the time the invention was made, to modify the system of Humlicek because the system will not experience bottleneck so that data can be delivered at twice the speed that would be achieved if data were only delivered from or to a single device controller.

As per claim 8, Humlicek discloses n and m are different integers [*M is greater than or equal to N; col. 5, lines 2-3].*

Allowable Subject Matter

7. Claims 3-6 and 9-14 are allowed over the prior art of record.
8. The following is a statement of reasons for the indication of allowable subject matter:

As per claim 3, the prior art of record does not teach or suggest reading data out of said n memory devices in units of m-1 items; forming redundant data from the data of m-1 unit; and storing in said m memory devices certain data of said data of m-1 unit as designated by the recorded information along with said redundant data in combination with the other elements set forth in the claimed invention.

As per claims 4 and 9, the prior art of record does not teach or suggest when copying data from said n memory devices to said m memory devices said n control means reads data of m-1 unit from said n memory devices whereas said m control means forms redundant data based on the m-1 unit read data to thereby store any one of said m-1 unit read data and said redundant data in any one of said m memory devices in combination with the other elements set forth in the claimed invention.

Therefore, dependent claims 5-6 are allowable as being dependent upon independent claim 4.

As per claim 10, the prior art of record does not teach or suggest a non-mirror event update monitor subprogram for monitoring data update with respect to said mirror

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primary LU upon interruption of duplexing of said mirror primary LU and said mirror secondary LU; a non-mirror event update position management subprogram for recording an update position of said data update with respect to said mirror primary LU; and a mirror resynchronous subprogram for copying data of the recorded update position from said mirror primary LU to said mirror secondary LU to thereby establish content coincidence, and said mirror primary LU and said mirror secondary LU are different from each other in arrangement of redundant array of inexpensive disks ("RAID") in combination with the other elements set forth in the claimed invention.

Therefore, dependent claims 11-12 are allowable as being dependent upon independent claim 10.

As per claim 13, the prior art of record does not teach or suggest a mirror resynchronous subprogram for copying data of said recorded update position from said mirror primary LU to said mirror secondary LU to thereby permit establishment of content coincidence; and a command issuance subprogram for issuing a command for execution of data transfer relative to the second external memory device; and said second memory device system includes: a mirror secondary LU; and an m-RAID control subprogram for performing RAID control of said mirror secondary LU, and said mirror primary LU and said mirror secondary LU are different in RAID level from each other in combination with the other elements set forth in the claimed invention.

Therefore, dependent claim 14 is allowable as being dependent upon independent claim 13.

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach partitioning memory devices into groups; forming redundant data from red data and storing redundant data on memory devices.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9000.

PVV

Pierre M. Vital
Art Unit 2188
December 13, 2003

Reginald G. Bragdon
REGINALD G. BRAGDON
PRIMARY EXAMINER